



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,199	02/25/2004	Misty Azara	CQ10218	3364

23373 7590 07/25/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

COLUCCI, MICHAEL C

ART UNIT	PAPER NUMBER
----------	--------------

2609

MAIL DATE	DELIVERY MODE
-----------	---------------

07/25/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/785,199

Applicant(s)

AZARA ET AL.

Examiner

Michael C. Colucci

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/20/2006, 2/25/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to where a "system of claim 1" is recited though claim 1 is in fact a method. Therefore claim 6 will be construed as the "method of claim 1".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4-13, 15-16, 18-27, and 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Olive et al, US 5790978 (herein after Olive).

Re claim 1, "synthesizing speech", Olive teaches pitch contours for text to be synthesized into speech, (Col. 1 line 5-25). "discourse function level prosodic features" is construed as the pitch, stress, junctures, and/or voicing level attribute of text (sentences) or segments of text. Olive teaches synthesized speech synthesis where pauses, inflections, accentuation and syllabic stress are taken into account, (Col. 1 line 5-25). Olive also teaches the segmentation (chunking) of phrases to find an appropriate pitch contour, (Col. 1 line 5-25).

"determining output information", Olive teaches the speech synthesizer converting information into a waveform, (Col. 2 line 61 – Col. 3 line 8). Olive also demonstrates the existence and determination of an output, (Fig. 1).

"determining discourse functions", Olive teaches a primary objective of converting text into a form of linguistic representation, (Col. 2 line 61 – Col. 3 line 8).

"determining a model of discourse function level prosodic features", Olive teaches the computation of pitch contours from textual input to mimic those found in natural speech, (Col. 1 line 48-59). Olive also teaches a model based on pitch contours creating particular pitch contour classes, (Col. 2 line 61 – Col. 3 line 8).

"determining adjusted synthesized speech", "Based on the discourse functions", Olive teaches synthesized speech synthesis where pauses, inflections, accentuation and syllabic stress are taken into account, (Col. 1 line 5-25). Based on "the model of discourse function level prosodic features", Olive teaches the final product of the speech synthesizer having dependencies on prosodic features (i.e. accent, intonation, pronunciation), (Fig. 1). Olive teaches intonation classes having a direct affiliation with pitch models, (Abstract).

Re claim 2, discourse functions determined "based on a theory of discourse analysis", Olive teaches the initial input text being operated on by Text Analysis Module prior to other TTS systems 10, (Col. 7 line 27-37 & Fig. 5).

Re claim 4, "output information is at least one of text information", Olive teaches boundaries for text and the duration of each phoneme in the synthesized speech, (Col. 3 line 22-45).

Re claim 5, "determining a synthesized speech output", Olive teaches the speech synthesizer converting information into a waveform, (Col. 2 line 61 – Col. 3 line 8).

"determining discourse function level prosodic feature adjustments", Olive teaches the modification of the input text phonemes, (Col. 3 line 22-45).

"determining adjusted synthesized speech output" based on the output and prosodic feature adjustments, Olive teaches the output of the Analysis module being sent to other TTS systems such as a text analysis function, (Col. 3 line 22-45 & Fig. 5). Olive teaches the final product of the speech synthesizer having dependencies on prosodic features (i.e. accent, intonation, pronunciation), (Fig. 1).

Re claim 6, "model of discourse function level prosodic features" is a "predictive model", Olive teaches a pitch contour can be predicted that closely models a natural speech contour, (Col. 1 line 59-64).

Re claim 7, "predictive models" based on at least one of "rules", Olive teaches text comprising accent groups determined in accordance with the rule of Moby's or variants of the rule, (Col. 4 line 51-59). Olive teaches that accent groups could be tied to accent curves affiliated with a Mobius model, (Col. 4 line 31-45).

Re claim 8, "prosodic features occur in at least one of a location" "within", Olive teaches parameters for obstruent consonants being determined from natural speech data where an obstruent is encountered in an accent group, (Col. 7 line 5-20). Accent groups are found within the text, (Col. 57-62).

Re claim 9, "prosodic features are encoded within a prosodic feature vector", Olive teaches a conversion of text into a linguistic representation where information on the phonemes is produced, (Col. 3 line 22-45). A vector is broad and construed as a

Art Unit: 2609

data structure. Text is construed as a *vector* type. Encoding is construed to be a general data operation occurring within the speech synthesis system.

Re claim 10, prosodic feature vector is a "multimodal feature vector", Olive teaches features of synthesized speech to include human-like characteristics such as pauses, inflections, accentuation, and symbolic stress, (Col. 1 line 9-25). "Multimodal" is broad and construed as the ability to have multiple features modes.

Re claim 11, "intrasentential discourse function", Olive teaches of text features within text where a text is broken down into sentences, then into phrases, words, tokens and so forth, (Col. 3 line 22-45). "Intrasentential" is construed as the relation of constituents within a sentence. Olive teaches the determination of stress on syllables, (Col. 3 line 22-45). This implies that the syntactic structure and/or the semantics of text must be considered.

Claim 12 has been analyzed and rejected with respect to claim 11. Claim 11 teaches "intersentential discourse function", where *intersentential* is construed to have the same definition as intrasentential.

Claim 13 has been analyzed and rejected with respect to claim 1. Claim 1 teaches the limitations set forth by claim 13. "Contextually aware theory of discourse", Olive teaches the initial input text being operated on by Text Analysis Module prior to other TTS systems 10, (Col. 7 line 27-37 & Fig. 5). Olive also teaches the distinguishing between structures of a sentence or sentences, such as stress or syllables through the division of text into smaller portions of text (sentences, words, tokens), (Col. 3 line 22-45). This implies the context of the text is understood.

Claim 15 has been analyzed and rejected with respect to claim 1. Claim 15 is the system of the method of claim 1.

Claim 16 has been analyzed and rejected with respect to claim 2. Claim 16 is the system of the method of claim 2.

Claim 18 has been analyzed and rejected with respect to claim 4. Claim 18 is the system of the method of claim 4.

Claim 19 has been analyzed and rejected with respect to claim 5. Claim 19 is the system of the method of claim 5.

Claim 20 has been analyzed and rejected with respect to claim 6. Claim 20 is the system of the method of claim 6.

Claim 21 has been analyzed and rejected with respect to claim 7. Claim 21 is the system of the method of claim 7.

Claim 22 has been analyzed and rejected with respect to claim 8. Claim 22 is the system of the method of claim 8.

Claim 23 has been analyzed and rejected with respect to claim 9. Claim 23 is the system of the method of claim 9.

Claim 24 has been analyzed and rejected with respect to claim 10. Claim 24 is the system of the method of claim 10.

Claim 25 has been analyzed and rejected with respect to claim 11. Claim 25 is the system of the method of claim 11.

Claim 26 has been analyzed and rejected with respect to claim 12. Claim 26 is the system of the method of claim 12.

Claim 27 has been analyzed and rejected with respect to claim 1. Claim 1 teaches the method with limitations set forth by the system of claim 27. "Input/output circuit", Olive teaches the input and output of a speech synthesis system, (Fig. 1) where text is the input and speech is the output. "Processor", for clarity and explanation, Olive discloses functional blocks including functional blocks labeled as processors, (Col. 2 line 42-52 & Fig. 5).

Claim 29 has been analyzed and rejected with respect to claim 1. Claim teaches the limitations set forth by claim 29. However a carrier wave is broad and is construed as a wave used to represent information transmitted. Olive teaches of the conversion of information to a speech waveform via the synthesizer, (Col. 2 line 61 – Col. 3 line 8). Where a waveform implies that data is stored within the waveform.

Claim 30 has been analyzed and rejected with respect to claim 1. Claim 1 teaches the method with limitations set forth by the apparatus of claim 30. Olive teaches a computer readable medium encoded with a computer program for determination of contours, (claim 25).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (See MPEP Ch. 2141)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

5. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olive et al, US 5790978 (herein after Olive) *in view of* Polanyi et al, US PG PUB 20020083104 (herein after Polanyi).

Re claim 3, "Linguistic Discourse Model", Olive teaches the initial input text being operated on by Text Analysis Module prior to other TTS systems 10, (Col. 7 line 27-37 & Fig. 5). However Olive fails to teach a specific type of analysis model. Polanyi teaches language text analysis systems using the Linguistic Discourse Model, although other theories of discourse may also be used, (Polanyi [0011]). Therefore, the combined teaching of Olive and Polanyi would have rendered obvious a particular theory of discourse analysis such as the Linguistic Discourse Model.

Claim 17 has been analyzed and rejected with respect to claim 3. Claim 17 is the system of the method of claim 3.

6. **Claims 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olive et al, US 5790978 (herein after Olive) *in view of* Reed, US 5095432.**

Re claim 14, at least one of "semantic, pragmatic, and syntactic context", Olive also teaches the distinguishing between structures of a sentence or sentences, such as

stress or syllables through the division of text into smaller portions of text (sentences, words, tokens), (Col. 3 line 22-45). This implies the context of the text is understood. However Olive fails to teach the particular type of context understood. Reed teaches multiple levels of analysis including lexical, syntactic, semantic, and pragmatic analysis, (Reed Col. 1 line 22-34). Therefore, the combined teaching of Olive and Reed would have rendered obvious context that is semantic, pragmatic, and syntactic.

Claim 28 has been analyzed and rejected with respect to claim 14. Claim 28 is the system of the method of claim 14.

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)272-1847. The examiner can normally be reached on 7:30 am - 5:00 pm , alt. Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571)-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Colucci Jr.
Patent Examiner
AU 2626
(571)-270-1847
Michael.Colucci@uspto.gov


VU LE
SUPERVISORY PATENT EXAMINER